

# Congress of the United States

Washington, DC 20515

January 27, 2023

The Honorable Jill Hruby  
Administrator, National Nuclear Security  
Administration  
Under Secretary for Nuclear Security, U.S.  
Department of Energy  
1000 Independence Ave., SW  
Washington, DC 20585

The Honorable Carlos Del Toro  
Secretary of the Navy  
1000 Navy Pentagon  
Washington, DC 20350

Dear Administrator Hruby and Secretary Del Toro,

As members with interest in nuclear nonproliferation, we write to request a report to Congress regarding the government's ongoing naval fuel research and development of pressurized water reactors for the propulsion of submarines using low-enriched uranium (LEU).

This request builds on a 45-year-old U.S. policy of reducing the risk of nuclear proliferation and terrorism by minimizing and, where possible, all but eliminating the use of nuclear weapons-grade highly enriched uranium (HEU) where non-essential. Reports from both the Naval Reactors office and JASON indicate that it may be feasible for the Navy to use LEU fuel for naval nuclear propulsion, as France and China already do. To support this R&D effort, the FY2023 NDAA signed by President Biden includes an authorization of \$20 million for Nuclear Fuels Development in NNSA's Office of Defense Nuclear Nonproliferation R&D.

A leading technical challenge is that a greater volume of LEU fuel is required to produce the same amount of energy as HEU fuel. The Naval Reactors office has suggested this would not pose a problem for existing aircraft carriers, which have sufficient space for a larger LEU reactor core. However, submarines face more severe space constraints, raising a question that we request you address in a report to Congress, as follows:

Please assess the feasibility and performance impact of a Virginia-Class replacement SSN(X) nuclear-powered attack submarine that retains the hull diameter and power plant design but leaves sufficient space for a low-enriched uranium-fueled reactor with a life of the ship core, possibly with an increased module length. The report shall assess the impact on vessel performance of the increased core size over the range of potential low-enriched uranium fuel packing densities discussed in the November 2016 JASON report JSR-16-Task-013 and contrast this with the performance impact of recent adjustments of vessel lengths such as that from the Virginia Payload Module.

This initiative is even more pressing with the September 2021 AUKUS agreement under which the U.S. and UK will provide nuclear submarine technology to Australia. Minimizing the global presence of HEU by reducing its use in military applications would reduce the risks associated with making and transporting HEU and demonstrate significant leadership on nonproliferation.

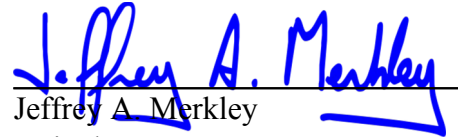
It is more important than ever to promote the safe, secure, and peaceful use of nuclear technologies. Again, we thank you for considering the issue before us in good faith, and we appreciate your attention to this matter.

Sincerely,



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Bill Foster  
Member of Congress



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Jeffrey A. Merkley  
United States Senator



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Donald S. Beyer Jr.  
Member of Congress



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Rick Larsen  
Member of Congress